REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

I. EXAMINER INTERVIEW

Applicants are grateful for the interview with Examiner Woitach on June 14, 2005 during which proposed claim amendments were discussed for overcoming the outstanding rejections. It was agreed that the proposed amendments overcome the rejections. Accordingly, the claims have been amended as discussed.

II. CLAIMS STATUS AND AMENDMENTS

Claims 50, 52, 53, 55, and 57-60 were pending in this application when last examined, and stand rejected.

Claims 50, 52 and 53 have been cancelled without prejudiced or disclaimer thereto. Applicants preserved the right to file a continuation or a divisional application on any cancelled subject matter.

Claim 55 is amended to change "meiotic recombination" to "meiosis" as supported by the disclosure, for example, at page 3, lines 27-29, page 6, lines 18-21, page 19, lines 1-16 (Figure 1) and original claim 1.

The preamble and step(e) of claim 55 have been amended to recite "with recombined DNA sequences" as supported by the disclosure at page 3, lines 19-29.

Claims 55, 57 and 59 have been amended to delete "*in vitro*" as this term is unnecessary in view of the use of "yeast cells" and the "altering" step. Support can be found in the original claims.

Further, minor editorial changes were made to claims 55 and 57-60 to better conform with US practice and to clarify the antecedent basis of "said cells." Support can be found in original claims 55 and 57-60.

Therefore, no new matter has been added by the amendment.

Claims 55 and 57-60 are now pending in this application.

III. INDEFINITENESS REJECTION

Claims 50, 52 and 53 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite for the reasons on page 3 of the Office Action. The present amendment overcome this rejection for reasons that are self-evident.

IV. ENABLEMENT REJECTION

Claims 50, 52, 53, 55 and 57-60 were rejected under 35 U.S.C. § 112, first paragraph, on the basis that "meiotic recombination" is not supported in the specification.

This rejection is respectfully traversed as applied to the amended claims.

As agreed to during the interview, the claims have been amended to replace "meiotic recombination" with "meiosis" as supported by the disclosure, for example, at page 3, lines 27-29, page 6, lines 18-21, page 19, lines 1-16 (Figure 1) and original claim 1. In view of this amendment, the enablement rejection of claims 50, 52, 53, 55 and 57-60 is untenable and should be withdrawn.

V. ANTICIPATION REJECTION

Claims 50, 52, 53, 55 and 57-60 were rejected under 35 U.S.C. § 102(b) as anticipated by Selva. See page 5 of the Office Action.

This rejection is respectfully traversed as applied to the amended claims.

To anticipate a claim, a cited prior art reference must teach each and every element of the claimed invention. M.P.E.P. § 2131.01.

Amended independent claim 55 calls for a process for making hybrid yeast cells with recombined DNA sequences, comprising (a) mutating a first set of haploid yeast cells to render defective the enzymatic mismatch repair system of the first set of cells and introducing a first DNA sequence into the first set of cells; (b) mutating a second set of haploid yeast cells to render defective the enzymatic mismatch repair system of the second set of cells and introducing a

second DNA sequence into the second set of cells wherein the second DNA sequence is partially homologous to the first DNA sequence and has up to 30% base mismatches with the first DNA sequence; (c) mixing the first and second sets of cells to form diploid yeast cells; (d) culturing the diploid yeast cells to effect meiosis of the partially homologous first and second DNA sequences, to make hybrid yeast cells; and (e) recovering the hybrid yeast cells with recombined DNA sequences.

Accordingly, the claim calls for maintaining the diploid yeast cells under condition to effect meiosis. However, Selva fails to disclose or suggest a method involved in culturing diploid yeast cells to effect meiosis of the partially homologous first and second DNA sequences to make hybrid yeast cells. Instead, Selva describes a homologous mitotic recombination assay in bakers yeast. Selva, page 1175, Abstract, line 1; page 1176, 1st column, lines 7-10 of the 2nd paragraph.

As discussed in section III on pages 6-7 of the November 2, 2004 response, fundamental differences exist between mitotic recombination and meiosis/meiotic recombination in yeast. The enzymatic mismatch repair system in meiosis is different from that involved in mitosis. For example, mitosis and meiosis require different mismatch repair genes and different proteins, respectively. As such, a mutation of a given mismatch repair gene can have different effects in meiotic recombination when compared with that in mitotic recombination, and vice versa.

This difference is reflected in the teaching of Selva, wherein the PMS1 deletion mutant did not exhibit elevated homologous recombination. Selva, page 1175, Abstract, last line. See also lines 1-3 on page 15 of the specification. In contrast, in the present application, it was found that this deletion produces up to a ten fold enrichment of meiotic recombinants. See page 15, lines 5-6 of the specification. This difference is due to the differences in the respective enzymatic mismatch repair system for meiosis and mitosis.

Selva does not teach a method for making hybrid yeast cells with recombined DNA sequences which is the aim of the present invention. Selva only discloses a method resulting in an increase in homologous recombination. Selva does not disclose or suggest a possibility of using an increase recombination rate for making hybrid yeast cells with recombined DNA

sequences having improved characteristics, such as improved spore viability as exemplified in the examples of the present invention.

Furthermore, as noted during the interview, Selva does not disclose or suggest steps (a) and (b) in claim 55 involving introducing a first DNA sequence into a first set of haploid cells and introducing a second DNA sequence into a second set of haploid cells, wherein the second DNA sequence is partially homologous to the first DNA sequence and has up to 30% base mismatches with the first DNA sequence.

Based on the above, it is respectfully submitted that Selva failed to disclose or suggest each in every element the claimed invention.

Therefore, as discussed during the interview, the rejections of claims 50, 52, 53, 55 and 57-60 under 35 U.S.C. § 102(b) is untenable and should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and early notice to that effect is hereby requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned attorney at the telephone number below.

Respectfully submitted,

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